

## Hinds Photoelastic Modulators with Advanced Thermal Control

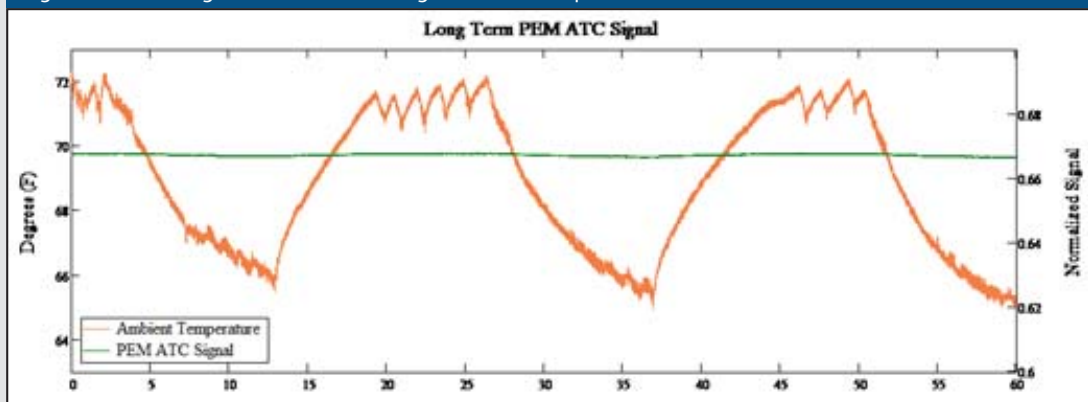
Hinds Instruments, Inc. announces the PEM-ATC™, a photoelastic modulator with advanced thermal control. This new PEM design offers long term stability and freedom from drift caused by ambient temperature variations.

The PEM-ATC is equipped with a proprietary PID controller, internal heating, and a temperature sensor. Through the use of heater operated PID feedback control, the interior of the PEM optical head is held at a constant 90°F or 32C, even when ambient temperatures are fluctuating.



Figure 1, demonstrates the stability of the PEM signal when ambient temperatures are changing. With temperature fluctuations from 66°F to 72°F the PEM signal standard deviation was only 0.05% of the

Figure 1. PEM signal with fluctuating ambient temperature.



normalized signal (R/DC) over 60 hours.

Figure 2, demonstrates the stability of the PEM-ATC. The blue line represents 3 hours of PEM signals without thermal control. Note the upward, relatively linear drift of the signal. Traditional approaches for addressing this

include making periodic offset corrections. The red line represents 3 hours of PEM data with Advanced Thermal Control. With this advanced PEM design there is essentially no drift over the three hour time frame shown on this graph.

The ATC option is currently available for the I/FS50 model (fused silica) but available for other models on request. For PEM applications requiring high sensitivity and thermal stability, this new option provides a cost effective solution with little impact on experimental footprint.

Figure 2. Percent change of PEM signals over time. Note the most stable signal in red is data taken with the PEM Advanced Thermal Control.

